

PugetSoundPartnership

our sound, our community, our chance

Human Health

Comments Submitted via E-mail

4/14/2008 – 5/9/2008

From: Debby Hyde

Date: 05/9/2008

Comment: Before I knew the date of the comment period, I asked staff from the various Pierce County agencies to review the topic papers and provide comments. When I realized our review date was later than your requested date, I still felt it important to collect them and send them on for your use. Some of the comments are very general and probably similar to others. But some staff had very specific thoughts as you will see in the accompany attachment. I hope you will find them useful.

Human Health Topic Forum

The discussion is comprehensive and at the same time mostly non-specific. There is little in here to comment on without moving to a level of specificity not appropriate to the general nature of this forum.

I have reviewed the draft dated April 14, 2008 and considered the questions posed on page 2. The discussion seems to contain every concern, need and strategy I have heard of regarding health risks and Puget Sound water quality. As mentioned several times in the draft, there are significant gaps in research in many areas. There is a need for more extensive and statistically significant sampling of fish and shellfish for contaminant levels. Risk assessment information, particularly with regard to contaminants that have multiple pathways of exposure, is similarly lacking. Broad efforts to reduce the introduction of toxics into the environment, such as the Department of Ecology Chemical Action Plan for mercury, may have the most potential for reducing human health risk.

From: Andrea Copping

Date: 05/09/2008

Comment: On behalf of the staff of the Pacific Northwest National Laboratory (PNNL) Marine Sciences Laboratory staff, I would like to commend you and your staff for pulling together the five topic papers. There has been a great deal of thought and expertise brought to bear in creating these papers in a very short time, and they have provided an excellent point of departure for moving towards the Puget Sound Partnership Action Agenda.

Human Health Comments Submitted via E-mail

4/14/2008 – 5/9/2008

I have worked with a number of PNNL staff to coordinate comments on the papers and I append those comments for four of the papers here. We have focused for the most part on scientific findings that should help to inform management decisions in Puget Sound, and we draw from programs in which we have been intimately involved, generally in partnership with agencies, tribes, and academia.

I would like to credit our scientific staff in Sequim and Richland for contributing to these comments, including Dr. Irv Schultz, Jill Brandenberger, Dr. Tarang Khangaonkar, Dr. Gary Gill and Dr. Charlie Brandt.

Human Health Topic Paper

We are pleased that the authors acknowledge PBDEs and perfluorinated chemicals as POPs of concern in addition to PCBs, PAHs & mercury.

Health concerns over POPs and other contaminants generally do not consider synergistic interactions between different chemical classes. The paper acknowledges this on page 10, para 5 and hints at this earlier on page 9 para 2, where they state "...additional information is needed on PCB congeners (individual congeners can act by multiple mechanisms...". The implication is that not all PCBs are the same (which is correct) and some act by different mechanisms. This also applies to PBDEs and perfluorinated compounds. For example, each can interfere with the thyroid axis at different loci, with potential for greater than additive effects. These complex interactions do not lend themselves to the type of approach used for assessing dioxin-like compounds where a TEQ type approach can be used. Newer, more sophisticated approaches are going to be needed for assessing human risk.

In determining the most appropriate management actions needed to protect human health, the emphasis is on regulatory programs, with periodic assessment of select contaminants in fin / shell fish. We believe that there is a need for direct measures of toxics exposure to people through periodic blood (plasma) monitoring of selected POPs in volunteers; this provides direct evidence of exposure that is superior to measuring POPs levels in seafood. This approach is being used elsewhere in the world, but has not been widely applied in the US or in PS.

We commend the authors for recognizing the need for "a parallel study for shellfish (including crab)..." (page 22, bullet 2); we strongly encourage this approach. The potential for Dungeness crabs as a vector for human contamination of POPs has been seriously overlooked in comparison to the focus on bivalves and finfish.

From: Vivian Henderson

Date: 05/09/2008

Comment: Hello, Luis - Thank you so much for copying me on this Email. I'm happy to hear your voice publicly promoting the stewardship of shoreline property owners. You are right, I believe most property owners are eager to do the right thing for the environment. I'm an upland property owner who has learned much about caring for our environment. You relate to grass clipping and I relate to raising 3 automobile/motorcycle crazy boys who thought nothing of changing the oil and dumping the old oil on the ground. Today we all cringe when we think about it.

Representation for property owners is always left out of the never ending assembly of groups, partnerships, strategies, councils, committees and stakeholders that government is constantly organizing and promoting. The message appears to be that property owners are too stupid to know what is best for the environment.

John Cambalik will remember, as I do so well, in Sept. 2002 Kitsap County sponsored a half day workshop "Living Along the Waterfront" at the Silverdale Hotel for the public. Property owners were invited to "...better understand our living shoreline..." For a small charge of \$10 lunch was provided. There was an overflow crowd of mostly shoreline property owners. There wasn't enough room for everybody so a list was taken for a follow up workshop which never happened. It was so unique in that most meetings we go to of an environmental nature are dominated by government employees, environmental groups. This gathering was dominated by property owners!

I attended the Puget Sound Partnership Land Use/Habitat Protection and Restoration Forum recently (4/28) held at the "Fountain Room" Bremerton waterfront. Also, the Human Health forum held earlier. Copious drafts and discussion papers had been prepared for the meeting. So little (if anything) was said about education. That point was made by several in the group. One person at the land use/habitat forum - I regret I did not get his name - said that unless property owners are included, the effort will not be successful.

I've added a few recipients of our very good exchange here. I hope you don't mind. Nice chatting with you, Luis. Thank you again.

From: Sonia Thompson

Date: 05/08/2008

Comment: Hello,

My name is Sonia Thompson and I am writing regarding the recent forums on the Action Agenda, and the Draft document:

I appreciated the opportunity to attend the Biodiversity session of the forums last week, as a representative of Cascade Land Conservancy.

I was impressed by the organization of the session and the quality of material in the Draft agenda topic.

The draft made the important connection between shoreline and mid-elevation land use and the health and future integrity of the Puget Sound .

One topic which should be emphasized more strongly is the public education/outreach element. Unless citizens take on the quality of the Sound as a personal responsibility, government efforts will be diminished. Education should begin at the elementary level, as we all know that children can shame their parents in to doing the 'right thing'. The final plan should have a requirement that all schools in the Puget Sound region include a course about the Puget Sound -- importance, health and care thereof. The teaching staff could be recruited from the abundance of volunteer stewardship organization who now monitor and champion the sound.

Biodiversity Topic Draft

Your draft mentions that population growth and sprawl are driving upland fragmentation and have a high negative impact on the sound. This language should be stronger; this threat will increase with the expected growth. In the section on Management Plans (starting on Page 28 of the Draft), you make a good start by referring to the Washington Biodiversity Conservation Strategy and promotion of habitat conservation. I urge you to strengthen this by outlining programs, both voluntary and regulatory for protecting habitats. Your plan should include protection of habitats upstream, because destruction upstream impacts the sound. If need be, draft a "Carrot & Stick" scenario which would make State and Federal funding contingent on implementation of good policies.

Again, thank you for the opportunity to attend the May 1st session and to comment.

- Pg 8 – The information on urbanization and stormwater would be stronger with more context on the degree to which growth is happening outside the

UGA. Under the “urbanization” paragraph, the document could include the following sentence: “Significant growth continues outside the Urban Growth Boundary. In Pierce County, approximately 20% of the growth between 2000 and 2007 was outside the UGA. In Kitsap, between 40 and 60% of growth has been outside the UGA in recent years.” Source: Puget Sound Regional Council, Puget Sound Trends, April 2008

<http://www.psrc.org/publications/pubs/trends/d5apr08.pdf>

- Pg 15 – The list of stormwater source control measures on this page could include “conservation and smart growth strategies”
- Pg 17 – The document correctly lists out “limitation on impervious surface, and protection of ecologically functional areas” as an area that needs more findings. These findings should comment on the cost effectiveness of using conservation and smart growth as stormwater prevention strategies as compared to treatment.
- Pg 21 – The end of the list of existing regulatory or management programs for addressing stormwater could include, as an example, the stormwater benefits of preventing development on the 90,000 Snoqualmie Tree farm through King County’s transfer of development rights from that property.
- Pg 31 – Add a bullet under the Land Use section that states “concurrent with employing conservation strategies for undeveloped portions of watersheds in the Puget Sound basin, pursue strategies to direct growth into urban areas and foster a high quality of life in urban areas to provide a positive alternative to low-density growth on rural or resource lands. Match these growth strategies with a range of techniques for Low-Impact Development and green infrastructure in urban areas.”

Human Health Topic Draft

- Pg 17 – In addition to conservation commission and local conservation district programs, there are land conservation programs such as Pierce County’s TDR program which seeks to reduce the number of low density units on farms and forests in exchange for greater density in cities. This work lowers the amount of stormwater runoff in the watershed
- Pg 20 – There are a number of conservation programs that are successfully reducing impervious surface and therefore stormwater runoff and the human health impacts that result from high runoff levels. Programs to this effect could be included in the “source reduction” category on this page.
- Pg 23 – The authors should broaden the 2nd bullet under “C” to address the need to limit impervious surface not only in a single development, but across the watershed. Even if there is more impervious surface in a single development, this can improve the overall amount of impervious surface in the watershed as a whole. EPA conducted a study comparing 10,000 houses across 10,000 acres, and 10,000 houses across 1,250 acres, and found that in

the more compact scenario, there was a 70%+ decrease in stormwater runoff.
Source: Richards, Lynn. "Protecting Water Resources with Higher-Density Development." Smart Growth. Environmental Protection Agency. January 2006.
http://www.epa.gov/smartgrowth/pdf/protect_water_higher_density.pdf.

From: Tami Ishler

Date: 05/08/2008

Comment: Please find attached the Department of Natural Resources comments on the Puget Sound Partnership Topic Forums. A hard copy will follow in the mail.

General comments by the Department of Natural Resources
Aquatic Resources Division and Forest Practices Division on
Puget Sound Partnership Topic Forums

Aquatic Resource Division Comments

The Department of Natural Resources (DNR) appreciates the opportunity to comment on the Topic Forums presented by the Puget Sound Partnership. We recognize the papers prepared by the Partnership were intended to elicit comment and are not meant to be definitive statements by their authors on the subject topic. While we are impressed by the volume of work that was completed in a short time frame in the Topic Forums, we view them only as first steps. A significant amount of additional work is needed to adequately summarize the state of the resources, assess the effectiveness of existing management tools, and to identify actions. These general comments and the attached forum specific comments are provided with that understanding and with the intent that they will strengthen the work of the Partnership in its effort to restore a healthy Puget Sound by 2020.

We remind the Partnership that DNR has a unique and central role as the manager of extensive terrestrial and aquatic lands with a diverse set of both regulatory and proprietary tools. Nearly all the marine and freshwater bedlands in Puget Sound remain in state ownership and are managed by DNR. DNR Aquatics staff believe there are potential synergies from working with DNR and utilizing its proprietary authority to help protect and restore the Sound. Accordingly, forum papers, especially the habitat topic, need to consider and integrate DNR's land management role more fully in order to effectively lead restoration of Puget Sound.

The topic forums suffer from artificial limitations placed on the scope of the topic. For example, an analysis of habitat status, threats and priority actions

that omits water quality is fundamentally incomplete. This limitation will be a major challenge for the Partnership to address in the cross-topic synthesis workshop especially since it will be the only identified opportunity to discuss Human Quality of Life, a topic of central interest. Human Quality of Life is critical to integrate since a significant challenge for the Partnership is to identify how the region can balance environmental needs with human well being.

Balancing how best to accommodate increased population growth and economic development with improvements to the health of Puget Sound will be difficult to achieve. The aggressive schedule for completing the Action Agenda and its supporting documents should help build public interest and their consequent buy-in to actions and needed resources. However, the Partnership must increase efforts to maintain clear objectivity in its written products so citizens, agencies and organizations will engage in the Partnership's work.

Additionally, accountability and responsiveness should be a critical component of the forthcoming Action Agenda. To that end, monitoring programs should be established to assess the effectiveness of management efforts and whether those efforts are in compliance with the applicable laws, rules and management guidelines.

Forest Practices Division Comments

Major concerns we have with the "Initial Discussion Draft Land Use/Habitat Protection And Restoration Topic Forum" (Forum) include the following.

1. The Forum's Preliminary Policy Recommendations call for "at state-level a single, integrated, set of regulations that apply in [sic] to the lands, streams and marine areas within Puget Sound to replace our present fragmented system of regulations." We are concerned that this recommendation may be inconsistent with RCW 90.71.360, which specifies,

No action of the partnership may alter the forest practices rules adopted pursuant to chapter 76.09 RCW, or any associated habitat conservation plan. Any changes in forest practices identified by the processes established in this chapter as necessary to fully recover the health of Puget Sound by 2020 may only be realized through the processes established in RCW 76.09.370 and other designated processes established in Title 76 RCW.

As you know, Washington's Forest Practices Act and Rules are built on a foundation of collaboration among the State, Indian Tribes, forest landowners, federal agencies, and others concerned with Washington's

private and state forests. This foundation traces back over 20 years to the 1987 Timber, Fish & Wildlife Agreement (TFW). A call to wholesale replace our current system of regulation would be of great concern, for diverse reasons, to the caucuses that have worked together so hard, for so long, in the spirit of TFW and later, Forests & Fish. Any departure from our current system of regulation also could jeopardize the State's Forest Practices Habitat Conservation Plan, a 50-year agreement implemented in 2005 by the State, U.S. Department of Commerce / National Marine Fisheries Service, and U.S. Department of the Interior / U.S. Fish & Wildlife Service.

2. The Forum appears to assume that the Forest Practices Act and Rules were last updated in 1987 ("Updates to the FPA were added in 1987, as a result of the 'Timber, Fish and Wildlife' negotiations ..."). No mention is made of Washington's 1999 Forests & Fish Report, which was subsequently enacted into law by the legislature, then translated into major revisions to the Forest Practices Rules adopted by the Washington State Forest Practices Board (Board) in 2001. We are concerned that the Forum's perspective on the Act and Rules may be skewed, as it appears to assume that 2008 levels of public resource protection are the same as those that existed 20 years ago.

This "1987" perspective is again reflected in the statement, "The [1987] update also failed to address issues relating to small forest landowners (mainly those with parcels smaller than 20 acres in size)." As part of the 2001 rule changes, and since that time, several initiatives have been implemented to help maintain the viability of small forest landowners. These include the Forestry Riparian Easement Program, changes to road maintenance and abandonment plan requirements, the Family Forest Fish Passage Program, and long-term (up to 15-year) forest practices approvals.

3. The Forum overlooks the existence of the Forest Practices Adaptive Management Program (AMP):

Monitoring and adaptive management programs are sparse in Puget Sound. Although good examples of programs do exist ... there are few regulatory programs that require their use. This is an area where a significant gap exists in management tools in Puget Sound.

The AMP is a requisite, integral part of the Forest Practices Rules. Its purpose is "to provide science-based recommendations and technical information to assist the board in determining if and when it is necessary or advisable to adjust rules and guidance for aquatic resources to achieve resource goals and objectives." Over \$20 million in federal and state funding has been obtained over the past 8 years to implement dozens of scientific

projects. Significant funding has been secured for the future; additional work is planned.

Time constraints prevent us from providing more detailed comments on the Forum at this time. We hope that the points noted above illustrate the need for increased interaction between the Partnership, DNR, and other organizations that are playing a leadership role in the conservation of Puget Sound's forest ecosystems.

Please let us know how the Forest Practices Program can best engage with the Partnership to accomplish the important work that is before us.

Forum-specific comments by DNR Aquatic Resources Division and Asset Management and Protection Division on Puget Sound Partnership Topic Forums

From: Jane Lamensdorf-Bucher

Date: 05/08/2008

Comment: Attached please find a cover letter from Theresa Jennings, Director of the King County Department of Natural Resources and Parks, and the following sets of comments on the Puget Sound Partnership topic forum discussion papers and risk analysis:

- 1) General Comments
- 2) Human Health
- 3) Land Use-Habitat
- 4) Water Quality
- 5) Species-Biodiversity
- 6) Water Quantity
- 7) Risk Analysis

We are also sending a hard copy to your attention at the Puget Sound Partnership address in Olympia.

see PDFS:

cover ltr to MNeuman from TJennings re comments.pdf

KC General Comments pdf

KC HumanHealth Comments pdf

KC LandUse-Habitat Comments pdf

KC Water Quality Comments pdf

KC Species-Biodiversity Comments pdf

KC Water Quantity Comments pdf
KC Comments on Risk Analysis pdf

From: Stewart Toshach

Date: 05/08/2008

Comment: Please forward attached comments/analysis to appropriate people in the Partnership or Science Panel.

See document:
PSP Topic Forums_data needs_2008-05-07.doc

From: Ron McBride

Date: 05/07/2008

Comment: Here are two comment tables for the WQ and Human health Forum Topic papers. I hope you can help get these to the right person to get them posted. There is one other comment table on Habitat and Land Use that is still being edited. Thanks, Ron

See documents:
PS_WQ_Topic Paper_Comments
PS_HumanHealth_Topic Paper_Comments

From: Darlene Schanfald

Date: 05/06/2008

Comment: This is Part 2 of the submission from the Olympic Environmental Council regarding our comments for the Topic Forum issues.

Air Operating Permits (AOP). (continued)

AOPs are overseen by two agencies. Ecology has selective oversight of some industrial sites; the Clean Air Agencies (CAA) over others. We strongly recommend that all AOP's be put under the CAAs in order to have consistent laws, oversight and enforcement.

Currently, Ecology's AOP regulations and oversight are so lax that industry has little regulation, which is why there is so much air pollution.

Example (and see attachment)

http://seattletimes.nwsources.com/html/localnews/2004189039_mill19m.html

The Director of Ecology needs to direct staff to respond to concerns of citizens, EPA and ORCAA.

Ecology must do the following to satisfy the citizens, to protect their health, and to protect Puget Sound.

A more responsive and transparent Department of Ecology:

- 1) An investigation should be conducted at the Department of Ecology to uncover reasons deficient permits are granted to industries that emit pollutants, and to weed out the root causes of an agency culture that has grown inappropriately cozy with the industry it is meant to regulate, while demonstrating hostility to the public it is chartered to protect.
- 2) Laws require there be adequate reliable monitoring data to prove compliance. Citizen reports of apparent permit violations to Ecology must be recorded, investigated, and tracked, and details of any investigation must be passed on to citizens and/or be made available upon.
- 3) Appropriate fines should be levied. Companies that need air(AOP) and water (NPDES) permits to pollute should put up significant funding for potential cleanup purposes. These monies can be banked by Ecology for future need. Legislation that lets polluting companies decide the type of guarantee it will give the agency should be done away with and proactive legislation should be written that protects the public good.
- 4) As the only agency with the legal right to request additional emissions information from corporations, Ecology must honor data requests from other agencies and not refuse legitimate requests from the Washington State Department of Health and the Clean Air Agencies.

OVERSIGHT AND ENFORCEMENT

- 1) An enforced responsive and transparent policy for citizen complaints about mill emissions.
- 2) Ecology must conduct more mill inspections.
- 3) Ecology must require reporting of emissions from the ponds on industrial sites.
- 4) Ecology must review mill complaint records monthly to ensure that maintenance problems do not continue for protracted periods of time.
- 5) Ecology must cite and fine industry when it a company is violating the Facility Wide General Requirements (FWGR) #'s 1, 2, and 7.
- 6) Ecology should conduct a study of soils for contamination as a result of contaminated dust/particulates from the mill emissions

AIR OPERATING PERMIT

- 1) Permits must "allow for meaningful review."
- 2) Permits must require 24-hour access to a real person via phone who can take citizen reports and begin an immediate investigation of problems as they arise.
- 3) Permits must require companies to report to Ecology citizen reports that include investigative information about mill conditions.
- 4) Companies must be required to promptly report all citizen reports

- 5) Permits must require monitoring of ambient air in the surrounding neighborhoods.
- 6) Permit must require complete testing and monitoring of pond conditions.
- 7) Companies must be required to document working order of equipment to Ecology monthly.
- 8) Permits must include a full accounting of fuels used and the contaminants contained in those fuels.
- 9) Permits must require more complete testing of reprocessed fuel oil (RFO) and a full air pollution modeling study on the effects of burning hazardous waste in the air.
- 10) Permits must request testing of the RFO ash composition.
- 11) Permits must require documentation of mill procedures to prevent the ash in company landfills from becoming fugitive dust.
- 12) Determination of waivers for meeting daily emission limits for criteria pollutants should be based on recent data, not data a decade old and reported to Ecology annually
- 13) Permits needs to require companies to meet the additional requirements for an acid rain generator.
- 14) Permit exemption limits need to be minimized.
- 15) There should be direct measurement of the most hazardous chemicals emitted by companies.
- 16) All TRS gases need to be reportable on a twice-daily average to track whether the polluter is increasing emissions at night.
- 17) Ecology must be given records for ALL fuels of ALL types used by companies.

COMPANIES THAT POLLUTE THE AIR

- 1) Companies should share monitoring and air condition information with the public and public agencies.
 - 2) Companies should respond to citizen reports and comments with respect.
 - 3) Companies should resolve their emission problems, especially on keeping air pollution equipment in good operating condition.
 - 4) Companies should upgrade their equipment; grand fathering equipment should cease.
 - 5) Companies should install pollution control equipment throughout their sites, and assure that the reprocessed fuel oil (RFO) does not have chlorinated compounds and solvents in the fuel.
 - 6) Companies should capture all their pollutants and recycle materials that can be reused.
- Adequate monitoring must be included in permits:
Per WAC 173-401-615, All air pollution laws must have adequate reliable monitoring that allow compliance to be judged.

Some State Laws that Ecology has refused to enforce:

Code:WAC 173-401-615

Monitoring and related recordkeeping and reporting requirements.

(1) Monitoring. Each permit shall contain the following requirements with respect to monitoring:

(b)

Impacts to health and property are banned by state law:

(WAC 173-400-040(5):

"The permittee shall not cause or allow emission of any contaminant if it is detrimental to the health, safety, welfare of any person, or causes damage to property or business."

WAC 173-400-040(4)

Air Act: Any person causing odor which may unreasonably interfere with use and enjoyment of property must use recognized good practices and procedures to reduce odors to a reasonable minimum

WAC 173-405-040 (10)

"The permittee shall at all times, including periods of abnormal operation and upset conditions, to the extent practicable, maintain and operate any affected facility, including associated air pollution control equipment, in a manner consistent with good air pollution control practice."

WAC 173-400-105(2):

"Ecology shall conduct a continuous surveillance program to monitor the quality of the ambient atmosphere as to concentrations and movements of air contaminants. As a part of this program, the director of ecology or an authorized representative may require any source under the jurisdiction of ecology to conduct stack and/or ambient air monitoring and to report the results to ecology."

WAC 173-405-072(5)

Š.."Other data: Each kraft mill shall furnish, upon request of ecology, such other pertinent data required to evaluate the mill's emissions or emission control program".

PESTICIDES

The attached photos show the results of a snail whose habitat was invaded by Garlon 3A, compliments of the WA State Department of Transportation. Don't let the snail die in vain. Use it as the poster life for what pesticides are causing.

This was incident at Jimmy Come Lately Creek area in Blyn WA. Jimmy Come Lately Creek was just restored for salmon habitat with millions of dollars of federal, state, regional and local governments, including employee time and resources. Yet, the WA State Department of Transportation has no compunction about spraying the area to hold back vegetation along the highway, even though the highly toxic substance will float, one way or another, right into the Creek. Some of the areas sprayed extended down toward the creek and estuary and into the woods on the east side of the estuary. The spray was as close as 10 feet away from the water.

Talk about cumulative affects! Noxious weed programs, county roadside vegetation management, the WA State Department of Transportation, the WA State Department of Agriculture, and the WA State Department of Natural Resources all apply cides, and right

into wetlands.

Here's a local example of how cavalier and insensitive to harm government can be. In 1990, Clallam County banned county roadside spraying on ALL rights of ways to maintain vegetation, and have moved to mowing. Yet, a few years ago they turned to spraying the recreation trail, used for health, that runs from eastern Clallam County west to the City of Port Angeles and beyond, and with little to none notification that the trail area is sprayed with poisons that take 6 months to 2 years to have no impact, except that the area is sprayed more than once, so there is always a health and environment impact. This is where pregnant women, women of child bearing age, youngsters, babies are strolled, and pets are walked, as well as where wildlife tries to survive. Trail maintenance volunteers are too lazy to pull weeds along the trail and wanted to use toxins. Well, toxins only make plants resistant to the toxins, so the situation is bizarre and the county personnel does not want to educate the volunteers on the hazards of pesticides, or become educated themselves. Who suffers, all those using the trail and the wildlife.

DNR aerial sprays. And on and on. Besides killing and maiming wildlife and eventually humans that are in the way, the poisons end up in surface and ground water; and in soil that blows all around.

OEC does not need to send you reading material. You should already know the issue and have easy access to getting more.

In sum, WA State needs to wean itself off of toxins and work with organizations like the WA Toxics Coalition, the Eugene OR based NW Coalition for Alternatives to Pesticides (NCAP), and the WA D.C. based Beyond Pesticides to plan a strategy to do this. Money will be needed from the WA State Legislature to bring such groups together to plan an agenda which will include the development of safe methods for handling noxious weeds, roadside and forest vegetation, etc., and, most of all, a plan to educate state employees, the medical industry personnel, nurseries, and the public on why they should not use poisons and what they can effectively substitute.

Many people are sickened and die from these poisons, acutely or over time. Many can not even afford to get well because they can't afford medical care. Public health must count, and so must the environment. These must be the two highest priorities to make healthy and keep healthy.

AQUACULTURE

Volumes of material have been written on this subject. Shamefully the WA State Department of Fish and Wildlife participates in this very toxic industry. NPDES permits are given to this industry by Ecology to pollute. And now DNR is involved.

The farmed fish industry is helping to poison Puget Sound, damaging bottom lands and ruining marine habitat and all aquatic life around these sites. Atlantic Salmon escapees have

managed to take over wild spawning streams and move out the wild salmon from their historic sites. Sea lice abound in penned fish. Diseases can spread between wild and penned fish. Interbreeding between the escaped penned fish and wild salmon have occurred, further ruining the wild gene pool. The penned fin fish food has enough toxins involved that pregnant women are warned not to eat the fish. Retail sellers don't label these as farmed fish. And NOAA is pushing to fill our waters, in state and beyond state boundaries, with penned fish farms.

<http://www.doh.wa.gov/ehp/oehas/fish/farmedsalmon.htm> lists some of the environmental concerns, yet exhibits no back bone to protect the public.

The West Coast Governors' Agreement on Ocean Health Draft Action Plan does not hold back on the problems this industry causes.

Issues of Purity and Pollution Leave Farmed Salmon Looking Less Rosy

By MARIAN BURROS

Published: May 28, 2003

<http://www.fluoridealert.org/pesticides/epage.teflubenzuron.htm>

Teflubenzuron is an acyl urea derivate classified as an insecticide for use in treatment of infestation with sea lice in salmon. Teflubenzuron is admixed with pelleted diet at a level of 2 g/kg. The intended dosage level of teflubenzuron is 10 mg/kg bw administered once daily for 7 consecutive days. The substance is also used as a pesticide on crops. Very few substances are available for treatment of sea lice in salmon....t is likely that the sediments will act as a sink for teflubenzuron and so sediment associated organisms are more likely to be affected by this chemical...

A recent video of penned salmon impacts

<http://www.youtube.com/watch?v=of3URNIMLMk>

Alex Morton presents to Cermaq AGM

Additionally, DNR is leases public lands to geoduck farmers and are, themselves, doing massive sized research in the waters. But the white plastic bags and tubing don't remain stationary, move around, and cause some havoc in the marine system. Too, they reportedly snag birds. This plantings change beach ecology and wipe out other marine life, such as mussel beds. In sum, these plantings and farming are degrading state tide lands.

http://www.ProtectOurShoreline.org/legal/080326_PierceCnty_TaylorShellfishDecision.pdf

A recent Pierce County court decision and documentation of environmental impacts.

http://www.protectourshoreline.com/slideshow/POS_ShellfishAquacultureConcerns.pdf

A slide show of a geoduck farm on Nisqually Reach.

FLUORIDE

On August 13, The Lillie Center, Inc., filed ethics charges against the CDC's Oral Health Division and the CDC's director Julie Gerberding for failure to follow the CDC's own

ethical code. The charge is specifically aimed at their failure to warn the public, especially the most vulnerable in the population--"kidney patients, diabetics, infants, and seniors", of the dangers of drinking fluoridated water. These dangers were clearly stated in the National Research Council's report (2006) on fluoride's toxicity, as well as concerns raised by the US Department of Agriculture about the total dose of fluoride people are getting from all sources, including food, toothpaste, mouthwash, dental floss, and dietary supplements, to name a few.

Not only is fluoride added to water which, we now know from a Harvard study is harmful to the development of youngsters 10 years of age and under and other studies regarding infants getting too much, but fluoride is in food and toothpaste, so it compounds the problem. Fluoride then runs down our drains into ground, then surface waters, and into the world of marine life. What is the effect on them?

The Environmental Working Group has added to its web site a long list of articles, etc. about fluoride impacts on humans.
<http://www.ewg.org/featured/222>

Further, from this web site (see www.ada.org/prof/resources/positions/statements/fluoride_infants.asp):
"It is deeply troubling that children, including bottle-fed infants, will begin drinking fluoridated water without the benefit of the ADA warning and in spite of the many [other] serious concerns [about fluoridation] raised by the National Academy of Sciences last spring," EWG wrote. "Public water supplies should be safe for all consumers, young and old alike." (The letter is available at www.ewg.org.)

Last November, the ADA - long a strong advocate of fluoridation, said: "Infants less than one year old may be getting more than the optimal amount of fluoride" if they consume formula or food prepared with fluoridated water. ADA added: "If using a product that needs to be reconstituted, parents and care givers should consider using water that has no or low levels of fluoride."

<http://www.msnbc.msn.com/id/23651072/page/2/>

This is an article about people looking for graves at the old Charles Manson sites. They use a detector that finds fluoride because it is expected to be in human bones and not animal bones.

(noted on page 2)

This is a review on fluoride toxicity to aquatic organisms:

Fluoride toxicity to aquatic organisms: a review

Julio A. Camargo,

Departamento Interuniversitario de Ecología, Edificio de Ciencias, Universidad de Alcalá, Alcalá de Henares, Madrid E-28871, Spain

Received 8 March 2002; revised 22 July 2002; accepted 23 August 2002. ; Available online 9 November 2002.

Abstract

Published data on the toxicity of fluoride (F⁻) to algae, aquatic plants, invertebrates and fishes are reviewed. Aquatic organisms living in soft waters may be more adversely affected by fluoride pollution than those living in hard or seawaters because the bioavailability of fluoride ions is reduced with increasing water hardness. Fluoride can either inhibit or enhance the population growth of algae, depending upon fluoride concentration, exposure time and algal species. Aquatic plants seem to be effective in removing fluoride from contaminated water under laboratory and field conditions. In aquatic animals, fluoride tends to be accumulated in the exoskeleton of invertebrates and in the bone tissue of fishes. The toxic action of fluoride resides in the fact that fluoride ions act as enzymatic poisons, inhibiting enzyme activity and, ultimately, interrupting metabolic processes such as glycolysis and synthesis of proteins. Fluoride toxicity to aquatic invertebrates and fishes increases with increasing fluoride concentration, exposure time and water temperature, and decreases with increasing intraspecific body size and water content of calcium and chloride. Freshwater invertebrates and fishes, especially net-spinning caddisfly larvae and upstream-migrating adult salmon, appear to be more sensitive to fluoride toxicity than estuarine and marine animals. Because, in soft waters with low ionic content, a fluoride concentration as low as 0.5 mg F⁻/l can adversely affect invertebrates and fishes, safe levels below this fluoride concentration are recommended in order to protect freshwater animals from fluoride pollution.

http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V74-476073H-

From: Patrick Moran

Date: 05/06/2008

Comment: The Human Health Topic paper understandably begins with Marine-centric issues that relate to human health; notably toxic contamination, presence of pathogens and biotoxins, and seafood consumption. The layout is busy, with numerous headings of sections and subsections, often with exceedingly minimal discussion therein. The document would benefit from considerable editorial refinement and consolidation. Further areas of consideration are discussed below.

Scope-

Here, perhaps more than in any other topic issue, some greater refinement of scope is needed. The dominant Human Health issues that face citizens of the Puget Sound region are the same as those that affect citizens nationally; ie. heart disease, diabetes, obesity, etc. Are these issues intended to be addressed

under the Partnership? Given the assumed scope above, probably not. What about Air Quality? This is clearly a pathway for contaminant transport to the Sound and has been identified as an important pathway in the Water Quality Forum. Is human exposure to these air quality conditions also to be considered? This would likely be a major, overriding risk driver if embraced. A similar, albeit less severe example, is contaminated groundwater. This is both a source of contamination to Puget Sound proper as is pointed out in the Water Quality paper, but might also be considered within a human health exposure scenario; again depending upon scope.

Risk vs. Precaution

The “classic” risk based approaches of single chemical exposure to single criteria is discussed and indirectly referenced in the document; ie ATSDR references. It has been suggested at several of the public forums that this traditional paradigm may be insufficient and may be responsible for the failed condition of the Puget Sound, despite our abundance of current regulatory practices. Further, the Precautionary Principle has been suggested as an alternative risk model, one currently in practice in the European Union, that results in a very different path of decision logic. If, and to what extent this alternate assessment model is to be incorporated in the Partnership’s approach to risk and uncertainty, is a management decision that needs to be addressed and communicated to the technical groups early in the process.

Marine Vessels

Marine vessels are identified in the HH Forum document as a potential source of wastewater and pathogens to the Sound. This statement is consistently followed by mention of a MOU between the State and the industry that is intended to address this concern. There appears to be a significant data gap regarding compliance with and the degree of applicability of this MOU to various vessel sizes. Additionally, the separate issue of vessel ballast water is also a potential vector for the stated issue of “emerging” biotoxins. While invasive or introduced species and pathogens is included as an issue in both the Biodiversity and Human Health topic Forums, marine vessel ballast water and wastewater appears to be an under appreciated source.

From: Katie Frevert

Date: 05/06/2008

Comment: Hello, I read the paper and attended the Human Health meeting in Tacoma on April 22. I have a few comments/ideas to add to the mix. (Forgive me if I misunderstand this as an opportunity to share perspectives.)

What an impressive job of getting a large amount of information in a brief document that was organized and readable!

Some of these comments were mentioned at the meeting, I believe all of the items below should be carefully considered:

- 1) Addressing air as a pathway.(I think the scientific board should make a recommendation on the inclusion/exclusion of air /air quality. Currently, it appears as a striking omission. The recommendation and justification for the decision should be included in any publications.)
- 2) It is irresponsible to not represent whole watershed and focus so predominately just on marine waterway and shoreline. The remark was made that the original goal from the governor was 'peak to peak' and includes a healthier inner city, streams and freshwater sources should be featured as well.
- 3) This document should be accompanied by a simple primer in environmental health/toxicology for the lay reader. Some basics on individual susceptibility, exposure (pathways, duration, frequency) toxicity, dose, risk. Agencies have these.
- 4) Also, recommend a simple chart at accompanies that names agencies that are involved and their respective role. (EPA, State Health, Ecology, local health etc). Chart could diagram who has regulatory power and who as enforcement power (see comment 3 below for easy placement of this information)
{ As you read through now in the charts and in the text- one refers to Ecology..... the reader would not know that is the name of an agency. }
- 5) It is confusing that we dictate a fish catch limit that is entirely separate from safe consumption level. Isn't possible to recommend that these are consistent and not misleading?
- 6) The Human Health Forum is the correct place for scientists to give voice and validity to the fact that representatives from industrial/commercial sources of pollution must be at the this table for discussion to meet the overall PSP goals. The goal to provide sustainability for the Puget Sound must to include them. (the Ports for example)
Specific input on document:
 - 1) re: S1- D- Main Gaps (pg9). Last sentence about "snapshot " should end with "because tribal consumption rates are often reduced because of heath safety concerns
 - 2) re: S1- D- Current Status A. (pg11)- Please don't put the tribal cultures as the last bullet! It implies least value- an after thought. It should be second in bullets because the first bullet is about consumption and this is about consumption.
 - 3) re: S2- D- (charts) A primer at the front of this section include what the agency name is that is associated with each management task. (does it

manage, regulate, enforce?) This is not common knowledge and it would help the reader a lot to know.

From: Darlene Schanfald

Date: 05/06/2008

Comment: I am submitting comments for the Jefferson and Clallam Counties Olympic Environmental Council.

While we have participated building the topic forum issues with the Environmental Caucus, the OEC wishes to address in more detail air operating permits, pesticides, the spreading of sludge, and aquaculture. These relate to human health and water quality.

I will send you more information tonight, but below is information on sludge and a bit on air operating permit oversight by Ecology (see attachment).

Overall, we would also like to see the WA State Legislature implement and enforce laws that disallow state or any municipal agency staff from going to work for industry upon leaving their jobs; that former state employees involved in regulations of industry would have to wait two (2) years prior to accepting employment with any business/business industry they helped regulate. It is wrong to ask the public to pay for the training, health and other benefits and retirement of personnel, that then go to work for business/industry the public paid to regulate. Such a legislative action would help dispel the realization, or perception, that government employees interpret laws favorable to whom they are regulating and that they fail to enforce.

Air Operating Permits (AOP).

AOPs are overseen by two agencies. Ecology has selective oversight of some industrial sites; the Clean Air Agencies (CAA) over others. We strongly recommend that all AOP's be put under the CAAs in order to have consistent laws, oversight and enforcement.

Currently, Ecology's AOP regulations and oversight are so lax that industry has little regulation, which is why there is so much air pollution.

Example (and see attachment)

http://seattletimes.nwsource.com/html/localnews/2004189039_mill19m.html

SLUDGE and INDUSTRIAL WASTES USED AS FERTILIZERS

There are numerous articles and data on these subjects. I don't intend to

do the research work for the PSP staff, but here are some references:

The best reference for the history of how a hazardous waste, municipal waste, was approved for spreading across farm fields and now through nurseries and home gardens is: Toxic Sludge is Good for You, by John Stauber and Sheldon Rampton, Chapter 8. The Sludge Hits the Fan Publisher: Common Courage Press, Monroe, ISBN 1-56751-060-4 The lead EPA scientist, William Sanjour, refused to go along with giving EPA approval to "recycle" it and call it "biosolids" and lost his position.

For the most complete insight into EPA politics on approving sludge as "biosolids" to be spread on land across the country, see [http://pwp.lincs.net/sanjour/ Collected Papers of William Sanjour](http://pwp.lincs.net/sanjour/Collected%20Papers%20of%20William%20Sanjour)

There are thousands of articles on this, legal actions where sludge spreading has affected the health of citizens, including causing death, legal actions, and air and water pollution. In sludge can be pesticides, heavy metal, POPs, pharmaceuticals, prions, personal care products, industrial wastes, etc... Most of these are not tested for at waste water treatment plants.

Message

For Immediate Release Adrienne Dominguez
May 16, 2005 916-445-4641

Senate Says No to Sludge!
Bipartisan Florez-Ashburn team produces Sludge Ban

Defeat for powerful sanitation districts
SACRAMENTO - Senate Bill 926 authored by Senator Florez which would allow Kern County to ban or further regulate the importation of sludge passed the Senate floor today with a vote of 26-9.

"Over two-thirds of the Senators voting today said 'no' to the sludge industry and 'yes' to protecting California's groundwater. It is a victory for the small communities all over the state," said Senator Florez.

Sludge, also known as biosolids, contains pollutants including hazardous materials and carcinogens which may have long-term health affects. The substance is applied to fields and used as a fertilizer.

Kern County receives one-third of the state's sludge mostly from Los Angeles, Orange and Ventura Counties. Other counties have banned or increased restrictions on the importation of sludge due to health concerns. Senate Bill 926 passed the legislature today with bipartisan support.

"Our community must never be the dumping ground for the discards of

others in California," Senator Ashburn said. "Leave the sewer solids in the areas where they are produced and treat them there. Don't dump on us!"

Senate Bill 926 will now move on to the Assembly.

* <http://video.ap.org/v/default.aspx?mk=en-ap&g=a748c288-d140-4936-85a2-112fd42c1de2&f=ap&fg=email>

NAACP asks attorney general to probe sludge research

Apr 14, 2008 3:55 PM (4 hrs ago) AP

Filed under: BALTIMORE , Sludge Poisoned Land

http://ap.google.com/article/ALeqM5gbpCMPX9_kRtY_kL1Yv9-OzuVxFfQD901UF900

April 14, 2008

Senate Plans Hearing on Sludge

By JOHN HEILPRIN Associated Press

<http://www.baltimoresun.com:80/news/lo cal/bal-md.sludge15apr15,0,3970131.story>

Senate panel to eye sludge study

By Stephanie Desmon | Sun reporter

April 15, 2008

A Senate committee led by California Sen. Barbara Boxer plans to look into government funding of studies that put fertilizer made from treated human and industrial waste on the lawns of East Baltimore rowhouses and a vacant lot near a school in East St. Louis, Ill.

Additionally, the president of the Maryland NAACP said yesterday that he is asking federal and state officials to launch a criminal investigation.

InsightMag.com

07/24/2000

EPA's Secret Role in Toxic Sludge

By Sheila R. Cherry

cherry@insightmag.com

"William Sanjour, then chief of OSWMP's Technology Branch, said, "It would be impossible to write guidelines or regulations for one without taking into account EPA's policy for the other."

If municipal sewage sludge had been deemed as potentially dangerous as industrial waste, it would have been regulated as hazardous and subject to the Resource Conservation and Recovery Act, or RCRA.

But in 1978, after heated jurisdictional exchanges, officials in EPA's Office of Water coaxed their colleagues at OSWMP to exempt sewage from RCRA regulations on the grounds that "it contains nutrients and organic matter which have considerable benefit for land and crops." There would be safeguards, OSWMP officials were assured. Once the transfer was completed, however, the promise of parallel standards quickly was forgotten, says Sanjour."

[http://www.zwire.com/site/news.cfm?newsid=19](http://www.zwire.com/site/news.cfm?newsid=19446417&BRD=1395&PAG=461&dept_id=216620&rft=6)

[446417&BRD=1395&PAG=461&dept_id=216620&rft=6](http://www.zwire.com/site/news.cfm?newsid=19446417&BRD=1395&PAG=461&dept_id=216620&rft=6)

Toxic fumes, blisters and brain damage : The cost of doing business? After years living near the largest industrial farm in New York, residents' health symptoms take on national relevance as the EPA prepares to roll back air-pollution reporting requirements for industrial animal farms. Ithaca Times, New York.

[http://www.mabiosolids.org/docs/peot-](http://www.mabiosolids.org/docs/peot-protocols%20for%20timely%20response%20project.pdf)

[protocols%20for%20timely%20response%20project.pdf](http://www.mabiosolids.org/docs/peot-protocols%20for%20timely%20response%20project.pdf)

'Timely Response to Sludge Health Complaints Protocol'

There is also the issue of fertilizer mixed with industrial waste.

The Seattle Times investigative reporter, Duff Wilson, wrote a series of articles in the 1990s, entitled Fear in the Fields.

Many people that purchase fertilizer for their gardens do not know that they could be contaminated with industrial hazardous waste. For years this was a well kept secret until Patty Martin, former Quincy WA Mayor, and some farmers in her area discovered this. (See, Seattle Times Fear in the Fields series and the book, Fateful Harvest , all by Duff Wilson, former investigative Seattle Times reporter.

<http://www.bioethicscourse.info/onlinetextsite/fearinfields.html>))

Wilson's nonfiction book, Fateful Harvest: The True Story of a Small Town, a Global Industry, and a Toxic Secret (HarperCollins, Sept. 4, 2001), won book-of-the-year honors from the national group Investigative Reporters and Editors. Fateful Harvest

From: Amy Bates

Date: 05/06/2008

Comment: I hope that this letter finds you in excellent spirits!

This note serves as an official comment letter in regards to the Human Health Forum, and I thank you for the opportunity to provide my sentiments and the summation of the feedback that I receive from the communities that I serve.

The inclusion of concerns in regards to the impacts of the environment upon human populations is very much appreciated, as it is long overdue. Historically, groups, agencies, and organizations focusing upon environmental issues failed miserably to consider the maladaptive impacts of environmental pollutants upon human populations, and as a result, many communities are inequitably exposed to a number of pollutants and polluting systems that result in poor (and disparate) health outcomes. These issues include, but are not limited to, inequitable exposure to lead, vehicle exhaust, industrial pollutants, and other contaminants. Unfortunately, these groups have limited resources in terms of addressing these issues, as they tend to reside in affordable areas that are notorious for cumulative pollutants.

Taking a wider environmental analysis of this problem, we also find that these communities not only lack resources to effectively address these issues; we also find that they are not intentionally included in decision making processes and the implementation and enforcement of environmental policies that impact their communities. As per the EPA's definition of Environmental Justice, this lack of inclusion is an injustice upon these communities.

I ask that, during this process, the Puget Sound Partnership continue to include human health concerns and intentionally create a system that is inclusive and environmentally just. Too, while some would define issues such as walkable communities and access to healthy foods as issues of "well-being," it has been demonstrated that the lack of inclusion of these issues has had a measurable impact upon the health of marginalized populations to include the following:

- Increased Infant Mortality Rates
- Increased Cardio-vascular Disease
- Increased rates of Asthma and Respiratory Disorders
- Excess Death
- Increased Rates of Reproductive Disorders
- Increased Rates of Hyperactivity in Children
- Increased Rates of Cognitive Disorders
- Increased Rates of Cancer
- Increased Rates of Diabetes
- Other Diseases

These issues are not simply "well-being" issues, but rather have real impacts upon the community and each individual's ability to experience relative health. Most arguing otherwise are not among impacted communities.

I understand and respect the challenges associated with including the impacts of environmental conditions upon human health; however I ask that you address these issues as part of the topic forum, and provide an avenue of leadership in terms of improving human health of disparately impacted communities by addressing their environmental concerns.

I would be happy to assist you in any way possible and provide my full support as you work towards inclusion of historically excluded communities and addressing their concerns.

From: Dan Stonington

Date: 05/06/2008

Comment: Cascade Land Conservancy, along with coalition partners throughout the Central Puget Sound Region and over the Cascades, launched The Cascade Agenda in 2005. The Agenda is a 100-year vision and set of strategies for conserving 1.3 million acres of working and natural lands, and creating vibrant, livable urban centers to house the population growth coming to the region.

Stakeholders created The Cascade Agenda in part to protect our waterways and Puget Sound. Conservation and 'smart growth' have substantial benefits for water quality because they reduce the percentage of impervious surface in a watershed and decrease stormwater runoff.

The following comments on the Land Use, Water Quality, and Human Health Topic Forum papers expand upon this theme: what happens uphill impacts Puget Sound downhill and land conservation and smart growth are two of the most effective preventive strategies available. These comments do not address the Water Quantity and Species/Biodiversity papers because these papers reference the other Topic Forums for information on the impact of land use policies on Puget Sound.

The authors and 'core groups' for all of the papers do a good job of stating the connection between land use and Puget Sound health. There are also opportunities in the papers, highlighted in the comments below, to clarify and strengthen this important connection.

Human Health Topic Paper

- Pg 17 – In addition to conservation commission and local conservation district programs, there are land conservation programs such as Pierce

County's TDR program which seeks to reduce the number of low density units on farms and forests in exchange for greater density in cities. This work lowers the amount of stormwater runoff in the watershed

- Pg 20 – There are a number of conservation programs that are successfully reducing impervious surface and therefore stormwater runoff and the human health impacts that result from high runoff levels. Programs to this effect could be included in the “source reduction” category on this page.

- Pg 23 – The authors should broaden the 2nd bullet under “C” to address the need to limit impervious surface not only in a single development, but across the watershed. Even if there is more impervious surface in a single development, this can improve the overall amount of impervious surface in the watershed as a whole. EPA conducted a study comparing 10,000 houses across 10,000 acres, and 10,000 houses across 1,250 acres, and found that in the more compact scenario, there was a 70%+ decrease in stormwater runoff. Source: Richards, Lynn. "Protecting Water Resources with Higher-Density Development." Smart Growth. Environmental Protection Agency. January 2006.

http://www.epa.gov/smartgrowth/pdf/protect_water_higher_density.pdf.

From: Art Starry

Date: 05/06/2008

Comment: Following are a few comments on the Human Health Topic Forum Report. My comments follow the order of the report and reference the sections to which they apply. Please let me know if you have questions or need clarification. Thanks for the opportunity to comment.

Comments on PSP Human Health Topic Forum Report

May 6, 2008

Overall Comment:

To understand the report readers need to be fairly knowledgeable about water quality issues and human health. If it is intended for a more general audience a glossary or prefacing section is needed that defines terms used in the report.

S1: Status of Threats ...

Key Findings

B. The paper needs to describe what “toxic” means and how risk and threat

are determined. Many readers have little idea what this means and will make assumptions that aren't correct. This sort of discussion is needed for all the health threats described in the report, and it will help readers understand the emerging chemicals and risk section.

C. The report should indicate which pathogens are being monitored by Ecology, DOH and King County, and should describe the difference between monitoring for indicators and specific pathogens.

There should be some explanation of why there is concern about metals and the health risks they pose. The same applies to PBT's.

Current Status

Health conditions should include that rivers, streams, etc., that drain to the Sound are clean and safe. The report should give some indication of the percentage of fresh water bodies that drain to the Sound that meet these criteria.

S2: Management Approaches

B. Another way to document effectiveness is to determine the percent or number of potentially polluting sites or facilities that are in substantial compliance with appropriate standards or permit conditions. If a facility is in full compliance, and the permit standards are appropriate, it will be less likely to pollute. This could apply to sewage treatment plants, farms with nutrient management plans, on-site systems, stormwater facilities, etc.

C. Some counties have developed effective programs for evaluating impacts of on-site systems on surface waters, such as the Kitsap County Surface & Stormwater Management Program.

P2: Needs Assessments and Gaps

B – Gaps:

Another on-site sewage system related gap is the lack of compliance tools available to assure on-site sewage systems can be evaluated in areas of concern. Currently property owner permission or probable cause is needed to evaluate or inspect a sewage system. Local Boards of Health or legislative bodies need tools to assure that all on-site systems in areas with public health concerns, as identified by that legislative board, are properly evaluated and failing systems are identified.

Areas that need attention: see above.

. Specific strategies.

Improve management of older and under functioning on-site sewage systems... While it's fair to say improvement is needed, it's not fair to say there are no programs to identify problems outside of shellfish growing areas. Some counties have programs that are more extensive than responding to shellfish restrictions and closures

From: Tracy L Fuentes

Date: 05/06/2008

Comment: Attached please find a first set of USGS comments on the human health, water quality, and water quantity topic forums. We will provide input on the habitat/land use and species/biodiversity topic this week. We may also provide additional comments on water quantity and water quality. Comments are from Patrick Moran, Rick Dinicola, Tony Paulson, and Rich Sheibley.

Thank you for the opportunity to participate in developing the Puget Sound Partnership's Action Agenda.

Regarding the Water Quantity topic forum, please incorporate USGS Water Science Center publications on the Puget Sound aquifer into your analysis:

Jones, M.A., 1999, Geologic framework for the Puget Sound aquifer system, Washington and British Columbia: U.S. Geological Survey Professional Paper 1424-C, 31 p, 18 Plates.

Vaccaro, J.J., Hansen, A.J., and Jones, M.A., 1998, Hydrogeologic framework of the Puget Sound aquifer system, Washington and British Columbia: U.S. Geological Survey Professional Paper 1424-D, 77 p.

From: Tami Ishler

Date: 05/06/2008

Comment: Human Health Topic Forum
Aquatic Resource Division Comments
General Comments

- The state of Washington receives numerous social and economic benefits from both commercial and recreational harvests of healthy and productive

shellfish beds. DNR supports these benefits through our commercial geoduck harvest on state-owned aquatic lands. This fishery provides an economic opportunity to private shellfish harvesters and serves as a revenue source to the State to both sustainably manage the fishery and support the Aquatic Lands Enhancement Account (ALEA). This account funds grant programs to local governments for improving and increasing access to public lands as well as programs various state agencies.

Detailed Comments

- Page 16, Table P1-1: Please add to this table the following program: “The state Department of Natural Resources in coordination with the Department of Ecology is developing a program to expand opportunities to reopen recreational and commercial shellfish beds near municipal outfalls throughout Puget Sound. This program works to identify, eliminate and/or mitigate toxic and pathogenic impacts to shellfish beds from these point sources.

From: Heather Trim

Date: 04/29/2008

Comment: Attached is the document we (env) submitted at the Human Health forum last week – as was mentioned today.

Human Health – “in” and “out” – Proposal of where to draw the line

“In” (working from the waters to the upland):

- Seafood consumption – toxics
- Seafood consumption – eating enough seafood in their diet
- Swimming/wading – direct contact with contaminated water
- Direct contact with contaminated sediment in waterbodies (includes beaches)
- Oil spills – fumes and contact with spilled oil (big and small)
- Surface water – toxics – drinking water (includes pharmaceuticals)
- Groundwater – toxics – springs – direct contact (includes pharmaceuticals)
- Groundwater – drinking – toxics and nitrogen
- Drinking water additives – fluoridation and chlorination byproducts
- Soil – toxics – direct contact
- Air – toxics – breathing
- Air – toxics – dust contact (in homes and outdoors)
- Air/products – toxics – ingestion/contact with products or dust
- Pesticides – overspray from agriculture or direct contact (home)
- Sludge spreading – direct contact or dust – toxics/pathogens
- Products (PBDEs, mercury, nanoparticles, phthalates, etc.)

- Building materials – toxics – (such as chewing on lead painted doorframes, PBDEs, formaldehyde, phthalates)

- ?

“Out” - many of these might be considered Human Well Being

- Exercise
- Adequate food supply
- Safe food supply (not seafood)
- Crime rate
- Safe/adequate housing
- Energy – for heating homes
- Transportation (accidents)
- ?
- ?

From: Peter Beaulieu

Date: 04/22/2008

Comment: The following suggestions are somewhat of a patchwork rather than comprehensive, and do not duplicate points already made in the Partnership's five initial draft topic papers. They consist mostly of one retiree's reminiscences (!) of specific examples possibly helpful to the Partnership in its new work, and hopefully carry forward the dedicated work of many who have come before. (The Partnership is to be specifically commended in its enabling statute and personnel connections for building directly on the sustained efforts of the Puget Sound Action Team.)

Overall, the content of the Partnership's draft papers, their content and tone, and the reader friendly structure for response are all to be most highly commended. This is good work, and even a pleasure to read.

Thank you for this early opportunity to contribute.

THE BASELINE PROBLEM STATEMENT

Find opportunities to tie pollutants to large scale or widespread chosen practices, when this is more instructive than a less direct tie to demographics. (The governing state statute is the Growth Management Act of 1991, which mandates “management” rather than an abstract ceiling.)

Examples:

- The Water Quality paper reports that in recent years polynucleated aromatic hydrocarbons (PAHs) have increased. PAH deposition rates dropped precipitously in the 1950s as coal burning was replaced with other home heating systems. The recent increase (still far below historic levels?) must be presented in this larger context, and then traced to correctible sources.
- As a second example, the Interstate 405 Corridor Program and the earlier I-90 bridge crossing claim a net decrease in runoff even as transportation capacity is increased. This outcome is due to design improvements such as culvert improvements for both old and new facilities (case study for retrofit discussion, pp. 16, 29). The cleanup burden must not be placed fully on the incremental increase in Sound area activity (a case study is the rate structure attached to the Brightwater Wastewater Treatment Plant proposal in King/Snohomish County. A balance was attempted between the financing of new treatment capacity and stormwater runoff.).

What is the more researched and current timeline information for various deposition rates (not only levels in the water column)? In 1983 the deposition rates for Puget Sound as a whole (not for localized sites) for several contaminants were reported to have declined in recent years.

Examples (affects p. 32):

- hydrocarbons reduced by 50 percent since 1950,
- Chlorinated compounds by 30 to 50 percent since 1960,
- Mercury by 20 percent since 1960 (The Habitat – Species Diversity paper reports that airborne mercury is on the rise due to emissions in Asia, p. 5),
- Arsenic by 15 percent since 1960 (Tacoma Asarco Plant closure);
- Lead by 10 percent since 1960.
- Holding constant in 1983 were silver, copper, cadmium.

STRATEGY: OVERALL

Further develop the insight that optimum ecological restoration is not the same as homogeneous protection at all geographic scales. That is to say, it is a smart move to protect the most valuable and vulnerable areas (equivalent examples: Mountain to Sound Greenway, rainforest preserves established in the Amazon rainforests, and even National Parks).

Puget Sound examples (finer grained, but from within our urban region):

- The approach used for offsite mitigation in the Cross-Base Highway Corridor Program might offer a kind of template. The documented strategy

included identification of redundant candidate project areas offsite (each with unknown availability), and for each investigates public and private long-term management options, etc.

- The incorporation of an Environmental Program into the Record of Decision for the I-405 Corridor Program (making such actions obligatory), and which selects (with directly involved water resource agencies) cost-effective mitigation sites for runoff volumes from within entire sub-basins of the WRIAs, rather than only from within the project corridor. (The transportation Corridor and sub-basin maps – in the Green and Cedar WRIAs -- are superimposed. In its complexity and size – 240 square miles – the I-405 Corridor is conceptually equivalent to a WRIA plan. The transportation and WRIA fiefdoms worked together.)
- Supporting the proposal for protection of pristine areas (Water Quality paper), is the example of Seattle Water Department consolidation of Cedar River Watershed ownership. This was done over two decades of trading property inholdings for acreage at other locations in the Cascades (and as originally proposed in the 1983 Comprehensive Water Supply Plan, another good model of complex resource management.)
- On the two-way relationship between water resources and land use, notice that the Snohomish Valley is protected by the urban growth boundary, while the earlier Green River Valley is not. Much of the difference turns on a seemingly technical detail, the fact that under federal guidelines urban development in the flood plane counted as a project benefit in the 1950s (hence the Kent-Auburn warehouse and Boeing complex), but not for any proposed dam on the Snohomish tributaries as under the Snohomish Basin Mediated Agreement (hence dairies and cattle pads).

STRATEGY: GEOGRAPHIC FRAMEWORK

Thinking backwards from implementation options to the way we frame the Puget Sound problem statement at the start, how might we begin early to cross-connect problem formulations to real implementation options? How can we think right-brained about the total package?

- Without muddling the more linear and legitimate Partnership approach, develop flexible technical capabilities, i.e., provide a standardized GIS capacity, a shared ecosystem map overlay system displaying (a) the Puget Sound Basin, (b) the Water Resource Inventory Areas (WRIA) boundaries and plans, and where available (c) 1960, 2000 and 2040 data sets (e.g., now available Puget Sound Regional Council maps), etc.

- For each sub-basin; the Geographic Information System (GIS) capability must be transparent to GIS for Water Resource Inventory Areas (WRIAS), to local land use GIS as well as habitat GIS (which is already proposed in the Habitat paper, P.20), and to stormwater (Water Quality, p. 30).
- The logic of realistic and effective implementation requires that the Sound be treated equally as a basin unit and as a collage of sub-basins, rather than as a unity nuanced only a bit with local detail. Specifically, priorities and an action agenda must be decisively developed in two distinct categories: overall, and sub-basin with some shared elements. The layered look is in. For example, and affecting both categories, what do we know about tidal circulation patterns and basin and sub-basin flushing cycle?
- The purpose for GIS compatibility and transparency is twofold: technical analysis and integration as already proposed, but also layered visibility of interrelated issues for the direct attention policy boards otherwise confined to their fragmented agency mandates and “radar scopes”. An excellent display would be a view of future land uses, showing those small sub-basins where future growth will violate the general thresholds of more than 12 percent impervious surface, or less than 65 percent forest cover (p. 8).
- This reader believes that the regional agenda must consist mostly of a fabric of sub-regional actions. GIS transparency is encouraged, for example, to help ensure integration of land use and water resources planning (p. 31), however this technical tool must not take on a life of its own, obscuring critical caution contained in the Water Quality text, namely, that pollutant runoff is highly variable within land use classifications (p. 7). A focus on gusty and clear performance measures is probably more consistent with the state Growth Management Act and more to the point than a population lid as seems to be implied in the Habitat paper (pp. 63, 65).

More rumination:

- Develop a map strategy. Replace or greatly supplement the King County pre- and post-1990 Map in two ways (Water Quality paper). The suggestion here is to move in the same direction, but in a more informative and comprehensive way. Why only King County, and why pre- and post- 1990? First, use the Puget Sound Regional Council maps for the four-county sub-region for 1960, 2000 and 2040, supplementing these as possible for the remainder of the Puget Sound basin. Second, superimpose the pre- and post-map onto the mosaic of WRIA basins. A technically consistent and shared map strategy might or might not imply a centralized control of maps and information (as is proposed in the Habitat paper).

- Superimpose the Conservation Trust Map (Habitat paper) onto a mosaic of WRIA maps and onto a jurisdictional map. This will give a better look at natural systems and at local government implementation aspects.
 - Systematize the maps. We are challenged by the fact that Puget Sound basin activities were superimposed on a standard composite of WRIA boundaries (not yet labeled as such) in all of the topical volumes of the federal/state mult-agency Puget Sound and Adjacent Water Study (PSAWS), completed in 1971 and in the days prior to GIS(!). With this basinwide context, additional WRIA level maps can then be lifted out for sub-basin attention without fragmenting the unified effort. This split-level approach has been done before.
 - Marine mapping. Show what we can about Puget Sound tidal behavior and sedimentation issues. A very preliminary effort is provided by the 1983 Puget Sound Water Quality Conference (see footnote 3, Proceedings, above). Of ten outgoing tidal units heading north from Seattle, seven reverse with the next tide to return from a point south of Port Townsend, with six of these then continuing so far south as to mostly encircle Vashon Island clockwise (four units), or to move south even through the Tacoma Narrows (two units). Supports Water Quality paper, p. 33).
- HUMAN HEALTH PAPER

Possible Priorities:

- Prevention or response to Red Tide seems to be understated as an ongoing urgency and priority. Red Tide is both sporadic and sometimes fatal to humans, and hard to police. The importance of agile response capabilities to issues such as this, alongside long-term management and engineering efforts, is obvious and should not be lost between comprehensive policy statements and long-term action agendas.
- Another high overall priorities is clearly the need for more information, and precautionary action, related to the recycling of possibly life-threatening (fetal) wastewater pollutants through the marine environment and back into the maternal human food chain (pp. 10, 25, 30). Thinking multi-media (water, and air) are we now finding a parallel to “secondary smoke”?
- Given the difficulty of tracing pollutants to sources, and given the direct effects of marine recreation on endangered embayments with low circulation (p. 12), a regional policy fostering a myriad of local corrective actions is imperative. Maybe ecological restoration is not always as complicated as it can be made to look.

From: Elaine Willey

Date: 04/18/2008

Comment: I applaud the Puget Sound Partnership effort addressing human health in your Tuesday, April 22nd forum in Tacoma. I hope you plan to cover the growing problem of Multiple Chemical Sensitivity (MCS) in WA State and across the nation. A short overview:

Multiple chemical sensitivity is growing at an alarming rate according to various studies: 6.3% of California residents, 12.6% of individuals from Atlanta, and 2.9% of all people 30+ in a Canadian study*. The numbers are inconsistent, underscoring the need for one comprehensive study, but the fact remains that multiple chemicals make public places intolerable for those with MCS. They impair the ability to work, earn a living, rent an apartment or buy a home (due mainly to chemical off-gassing and mold considerations). MCS even impairs ability to interact with friends/family members due largely to unregulated fragranced products containing petro-chemical derivatives. We don't know what the MCS numbers are for WA State, but this would be valuable information.

Research suggests substantial individual differences in chemical sensitivity... There are more than 40 studies on MCS published from the United States, Canada, Europe, Japan, and Australia which have shown that most cases of MCS are initiated after one or more exposures to organic solvents and three classes of pesticides.

Multiple chemical sensitivity (MCS) is an environmental illness (EI) in which negative neurological, pulmonary, cardiac, and rheumatic health effects, among others, are experienced from exposure to common environmental chemicals including fragrances, cleaners, pesticides, and other petrochemicals at concentrations that are below regulatory toxicity thresholds and that are normally deemed as safe.¹⁻² In 1989, consensus criteria were established for the diagnoses and definition of MCS and later revised in 1999.³ The case criteria, currently under revision, define MCS for diagnostic purposes as meeting six criteria:

1. The condition is chronic.
2. Symptoms recur reproducibly with repeated chemical exposure.
3. Symptoms recur in response to lower levels of chemicals than previously tolerated.
4. Symptoms appear in response to multiple chemically unrelated substances.

5. Symptoms improve or resolve when chemical incitants are removed.
6. Multiple organ systems are affected..

What are some of the steps that can be taken to reduce MCS which is growing exponentially? What accomodations can be made to help those suffering from MCS to lead productive lives? How can our current medical system more accurately address the needs of the MCS community? Are we breeding a whole new generation of youth who will suffer from MCS after repeated, daily exposures by other heavily fragranced students combined with the onslaught of pesticide exposure that many endure? What public places (schools?) should be deemed fragrance-free? Should an education awareness plan be developed?

Obviously, greatly reducing pesticide use (think private residences, DOT and WA Agriculture) and requiring strong, visible warning signs on solvents represent 2 steps we could take to help reduce toxic exposures leading to MCS.

Thank you for including this critical topic in your discussions.

From: Lisa Palazzi

Date: 04/15/2008

Comment: Hello Millie Judge,

I am linking to you from the online PSP Habitat and Land Use topic forum information system. I have emailed the PSP before, but have not yet heard anything back – other than being put on these email lists. I love getting this information, and will be involved with the process. But I have a parallel process going on that I need the PSP to know about.

I have been working within a larger group of soil and wetland scientists (main contacts listed above) over the past several years at the state legislature, trying to get a state certification program going for these two key professional scientist groups (more information at www.soilscientistlicensing.com). We need some help from a group like PSP which has direct interest in the exact issue that this legislation is intended to address – protecting and restoring the Puget Sound ecosystem – in particular water quality, water quantity and related water dependent wildlife habitat.

We have been through Sunrise Review process
(<http://www.dol.wa.gov/about/reports/sunriseSoilScientist0108.pdf>)

– results from that extensive report recommended certification. And that means that there is documented evidence that unprofessional or unethical work carried out by those two professions has had negative impacts on public health, safety or welfare in WA state. So this is a real problem. We need to ensure that the people carrying out this work are adequately trained and educated, and that there is a state-based complaint system in place to ensure that bad practitioners can be removed from the certified professional list.

Soil scientist's and wetland scientist's work has direct impacts on water quality and water quantity balances in the Puget Sound. I am a consulting soil scientist (focus in hydrology) and wetland scientist, and I work on over 100 relatively small soil/wetland projects per year (individual landowners or subdivisions). And I have a small company (www.pacificrimsoilandwater.com). So the potential cumulative effects of our entire professional group are obvious and enormous. We expect to have about 300-400 certified soil or wetland professionals state-wide, with more than half working in the Puget Sound basin. At that rate – there could be (most likely are) over 15,000 relatively small soil or wetland projects per year in the Puget Sound basin that directly affect wetlands, and soil erosion, and water quality, and water quantity. That estimate ignores the larger projects that we work on – highways; ports; airports..... This is important!!

Unfortunately, the legislature does not respond to logic or facts, but rather to politics and powerful interest groups. And we – being a rather small group of scientists – do not meet that criteria, and are not that effective at the political process. Logic and facts are on our side (Sunrise Review), but the Engineering and Architects (AELC) and other consultant (NEBC) lobbying groups are not; neither are the forestry lobbyists (WFPA, WFFF). The AELC simply doesn't want any more professional licensing or certification programs run by the state—turf issues; the foresters and NEBC are afraid the new program will mean that they will be required to hire those professionals when they do soils or wetland work – another layer of bureaucracy; and other smaller lobbying groups are simply following the lead of their more powerful peers. And for those reasons alone—nothing to do with logic, or the fact that this program is very much needed -- we may not get this legislation passed. We are working with these lobbyists, trying to change their stance. But they are simply not that interested in us, because we have so little power.

But I know that if we have groups like the PSP behind us, we will not fail. So --- I am contacting you. I hope that you will pass this along to your peers in PSP, and can get back to us with some indication of whether or not you can help us at some level. I know that PSP is not a lobbying group; but I also know that you have contacts and power that we do not.

